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LANGUAGES OF THE WORLD--SINO-TIBETAN FASCICLE THREE.

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THIS REPORT CONTAINS A LIST AND DESCRIPTION OF THE LANGUAGES OF THE CHINA-TIBET-BURMA REGION OF ASIA, WITH PARTICULAR REFERENCE TO THE MIAO-YAO LANGUAGE FAMILY AND THE CHINESE DIALECTS. (THE REPORT IS PART OF A SERIES, ED 010 350 TO ED 010 367.) (JK)

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LANGUAGES OF THE WORLD:

SINO-TIBETAN FASCICLE THREE

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LANGUAGES OF THE WORLD:
SINO-TIBETAN FASCICLE THREE

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3.0. External and internal relationships of languages in the Miao-Yao family

3.1. Miao branch

3.2. Yao branch

[Supplement to Sino-Tibetan Fascicle One]:

1.6.0. Chinese languages and dialects, and their phonologies

1.6.1. Wu dialects (Soochow-Shanghai)

1.6.2. Cantonese dialects (Canton)

1.6.3. North Min dialects (Foochow)

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1.6.7.3. Non-unique phonemicizations of Szechwan dialects (Southwestern Mandarin)

The research reported herein was performed pursuant
to a contract with the United States Office of Education,
Department of Health, Education, and Welfare.

3. MIAO-YAO FAMILY

3.0. In the case of the Miao-Yao family, the similarity between the few daughter languages spoken today is such that no one would question the possibility of reconstructing Proto Miao-Yao.

There are here, however, more than the usual Southeast Asian possibilities of more distant phyla relationships with the homogeneous Miao-Yao family. Fang Kuei Li and other Chinese scholars place Miao-Yao specifically with Kam-Thai and Han Chinese in a Sinitic — as opposed to a Tibeto-Burman — division of Sino-Tibetan (see Sino-Tibetan Fascicle One, 0.3, AL 6:3). It is here included as a family of languages within the Sino-Tibetan phylum. It may well be that the Miao-Yao family belongs in a phylum enlarged beyond Sino-Tibetan — one that would include Miao-Yao and Kam-Thai and Han Chinese and Austronesian in one huge macro-phylum in which the four would be coordinately related as language families. In short, it may turn out that special similarities relate the Miao-Yao family quite immediately to the Kam-Thai family and to the Austronesian family, as Rufus Hendon suggests.

But special similarities of the Yao branch of Miao-Yao suggest similarly immediate relationships with Han Chinese, especially because of similarities to Hakka and Cantonese, as members of the Han Chinese family. And long ago Davis (1909) noted some such special similarities between Yao and the Mon-Khmer family. More recently, K'un Chang (1955) found that reconstructed tones for Miao-Yao languages bore considerable resemblance to Vietnamese

tone (and Vietnamese may well be distantly related to the Mon-Khmer family). These reconstructions also show similarities between Miao-Yao tones and tones in the northern group III of the Kam-Thai family (Kam-Sui languages). But so far, no relationship has been convincingly demonstrated, it is said, for connecting Miao-Yao with the northern group III Kam-Sui languages of the Kam-Thai family, nor with the Han Chinese family, nor with the language families in the Tibeto-Burman division of Sino-Tibetan.

There appear to be at least three separate Miao-Yao languages, if the Yao branch consists of one language (3.2). In the other — i.e. Miao branch of Miao-Yao — there are at least two languages which are known to be mutually unintelligible, and hence separate languages (3.1). But, possibly, more language barriers than this will be found in the Miao branch, thereby attesting more than two separate Miao languages.

3.1. From their area of greatest concentration in Kweichow Province, Miao tribes are spread over the southwestern provinces of China (Hunan, northern Kwansi, and southern Szechuan) and into the Indo-China peninsula (in scattered areas of North Vietnam and northern Thailand). A Chinese source estimates that in 1956 there were 2,510,000 Miao in southest Kweichow and western Hunan; a more recent estimate gives 3,000,000 for the total number of Miao speakers in all areas. These figures may be higher than the actual number of speakers of Miao languages, since 'Miao' is used in China as a cover term for many diverse hill tribes. According to Savina (1930), there

were about 200,000 Miao in North Vietnam (Tonkin) and Laos. Estimates based on 1953 census information give about 60,000 for the present total of Miao and Yao in Laos (where the Yao are called Man). (Halpern (1960) says most Miao men in Laos now speak a little Lao.) Though summaries based on the 1957 census of Thailand indicate the presence of Miao and Lao in Thailand, our sources did not give actual population figures for either.

The degree of diversity in the speech of the Miao is not actually known, but it is certainly not as great as the diversity of Miao tribal names might imply. Lists of Miao tribes in Hunan include as many as twenty-two names, but some of these are probably simply different local names for the same group and others certainly are names for Thai-speaking groups mistakenly labelled as Miao. Linguistically, all of the really Miao-speaking groups of Hunan can probably be subsumed under those of Kweichow. In Kweichow five Miao groups are distinguished — Black or Hei Miao, Red Miao, White Miao, Green Miao, and Flowery Miao. The Yi or Thai Miao, who live among the Northern Thai tribes, probably belong to either the Green or the Flowery Miao. Black Miao is known to be definitely not mutually intelligible with any of the others; the other four are said to be probably mutually intelligible to some degree. Thus, there are at least two Miao languages — Black versus the rest; but of course there may be as many as five, depending on the degree of mutual intelligibility of the rest.

Yao has m, n, ŋ, p, t, and k as consonant finals. Miao languages differ in having no consonant finals except a nasal (usually [ŋ]), which in at

least some dialects may be realized as nasalization of the preceding vowel, and in others varies between nasal velar and nasalization of the preceding vowel.

The Yi (Thai) Miao dialect described by K'un Chang (BIPH 29.11-9, 1957) is spoken in the Kwang-Shun district of Kweichow province. In Yi Miao the following single consonants and consonant clusters occur initially:

p	t	c	k	kw ?
ph	th		kh	
py	ty	cy [ȶ]		
pyh		cyh		
mp	nt	ɲc	ŋk	ŋkw
mph	nth	nch	ŋkh	
mpy	nty	ncy		
mpyh		ncyh		
pr	tr [ʈ]		kr[q]	
prh	trh	crh [ʂ]	krh	
mpr	ntr		ŋkr	
mprh	ntrh		ŋkrh	
pl			krl	
plh			krlh	
mpl			ŋkrl	
mplh				

h

m	n
mh	nh
my	ny
myh	nyh
mr	
mrh	
	r [ẓ initial and after p]
	rh
	l
	lh
w	y
wh [φ]	yh

The following single vowels, vowel clusters and sequences of vowel plus ŋ occur finally:

i		u
	ɯ, ɯŋ	
e, eŋ		o, oŋ
	ai ɑi	
	au ɑu	
	aɯ ɑɯ	
	aŋ	
	a	

Of the seven phonemic tones, thr[illegible] occur with all initials while four occur only with aspirated initials (and the glottal stop is generally counted among the aspirated initials). Thus, tone 1 is called mid-rising, and has the value of mid-rising when it occurs with aspirated initials; it also occurs as a level tone, a bit above mid, with unaspirated initials and with the glottal stop /ʔ/, which is here counted (exceptionally) as an unaspirated initial. Tones 2 (high-rising) and 3 (mid-level) occur with all initials. Tones (4), (5), (6), (7) occur with all initials that are not generally counted as aspirated: high-level (4), mid-falling (5), low-level (6), low-falling (7).

The Miao described by Savina, Histoire des Miao (1930) is similar in inventory and list of clusters with nasals as initial members or liquids as second members (here both /r/ and /l/). The inventory differs from that above in showing two sibilant positions, with voiced-voiceless distinction at each, as well as an aspirated-unaspirated distinction for both affricates — s, z, š, ž beside c, c^h, č, $č^h$ — but some of these show very restricted distributions, e.g. /ž/ occurs only after /n/. The inventory is also expanded by the addition of /d/ and aspirated /d^h/, which contrast with /t t^h/ after /n/, unlike [b] which occurs only after /m/ in complementary distribution with [p]. However, only five vowel tones are shown for this Miao dialect: high level, high rising, high falling, low rising and low checked.

Black (Hei) Miao differs phonologically from the other Miao dialects in lacking palatalized consonants and initial consonant clusters. Fang-Kuei Li gives the following phonemes for Black Miao as spoken in Jung-chiang in

southeastern Kweichow.

Consonants:

p	t	ʧ	k	q	ʔ
p^h	t^h	$ʧ^h$	k^h	q^h	
p^y	t^y				
p^{yh}	t^{yh}				
m	n	ɲ	ŋ		
m^h	n^h	$ɲ^h$			
f	ɬ	s ʃ	x		h
f^h	$ɬ^h$	s^h $ʃ^h$			
	$ɬ^y$				
	$ɬ^{yh}$				
v	l	y	ɣ		
	l^y				

The only consonants which may occur finally are -n (only after / i/) and -ŋ (only after / a/ and / u/).

Vowels:

i	u
e	o
ɛ	ɔ
a	

Plus eight tones: high level, mid-high level, mid level, mid-low level, low level, high rising, low rising, falling.

For Red Miao as given in Ling and Ruey, The Miao Tribe of Western Hunan, the phonemes are:

Initials:

p	t	tʂ	tʸ	k	q	
pʰ	tʰ	tʂʰ	tʸʰ	kʰ	qʰ	
mpʰ	ntʰ	ntʂʰ	ntʸʰ	ŋkʰ	ŋqʰ	
		ʂ	ʂʸ			h
		ʐ				ɦ
m	n		nʸ	ŋ		
	l					
	lʰ					
w			y			

The only consonant final is /ŋ/, which may occur as only a nasalized off-glide of the preceding vowel.

Vowels are:

i		u
e	ʌ	o
ɛ	ə	ɑ
	a	

plus five phonemic tones: 5-5, 3-5, 5-3, 1-3, 3-1.

We give below a few examples of sentences and phrases in Red Miao, as excerpted from Ling and Ruey by Fang-Kuei Li, with brief comments on their sentence profiles.

As in the 'acquired Mandarin' and the Thai sentences given in the two preceding Sino-Tibetan fascicles, we identify — in the sentences which now

follow — phrase boundaries by square brackets, and compounds by parentheses around their glosses.

(1) I eat rice.

we^{3-1} $noŋ^{5-3}$ lhi^{3-5}

[I] [eat] [rice]

(2) He does not have money.

$pəʌ'^{5-3}$ $tʸi^{5-3}$ $mɛ^{5-3}$ $taŋ^{3-5}$

[he] [not have] [money]

(3) He chops firewood with an axe.

$pəʌ'^{5-3}$ $kaʌ'^{5-3}$ $ko^{5-3}to^{3-5}$ du^{3-1} $taʌ'^{5-3}$

[he] [use] [axe] [chop] [firewood]

(4) Do you speak Miao?

$məʌ'^{3-1}$ $pʰu^{5-3}$ tu^{3-5} $sʸioŋ^{5-3}$ ma^{3-1}

[you] [speak] [language Miao] interrogative

The general order of phrases in sentences (1) to (4) above is [Subject] [Verb] [Object]. In sentence (2) the negative particle $tʸi^{5-3}$, a minor morpheme, precedes the phrase nucleus major morpheme in the [Verb] phrase. The [Subject] [Verb] [Object] profile is expanded in sentence (3) by the addition of a second [Verb] phrase plus [Object] phrase, keeping the phrases in the same relative order. Sentence (4) shows the [Subject] [Verb] [Object] profile expanded by a final out-of-bracket interrogative particle — out-of-bracket because the dependence range of the interrogative particle extends over the whole sentence. (Compare the similar use of the final interrogative particle

ma^{o} in 'acquired Mandarin', AL 6:3.76-8.)

In addition, questions may be formed in Red Miao, as in Mandarin, by the use of interrogative demonstratives, as in sentences (5) and (6), below, in both of which the interrogative demonstratives are composed of two morphemes.

(5) What is this?

a$^{5-5}$ lɛ$^{3-1}$ neŋ$^{3-1}$ nyi$^{3-5}$ ko$^{5-3}$naŋ$^{3-1}$

[one classifier this] [be] [(what)]

The classifier construction of the first phrase is quantifier-classifier-phrase nucleus, as in Chinese. The profile of this sentence may be expanded by the addition of an optional interrogative particle, yi$^{1-3}$.

(6) You came from Ch'ien-ch'eng; where did he come from?

mə́ʌ$^{3-1}$ nyi$^{3-5}$ qo$^{3-5}$ tyi$^{5-3}$hə́ʌ$^{3-5}$ lo$^{3-1}$ naŋ$^{3-1}$

[you] [be from (Ch'ien-ch'eng) come] particle

pəʌ$^{5-3}$ nyi$^{3-5}$ qo$^{3-5}$ ta$^{5-3}$tyi$^{5-3}$ lo$^{3-1}$ naŋ$^{3-1}$

[he] [be from (where) come] particle

The dependence range of the final particle naŋ$^{3-1}$ is the whole preceding clause; the use of naŋ$^{3-1}$here is comparable to the Mandarin use of sentence final te^{o}, glossed that's it, that's the situation in the 'acquired Mandarin' sentences in 1.4 (e.g. AL 6:3.70).

(7) The farmer works in the field.

nɛ$^{5-3}$ tsu$^{5-3}$ kəʌ$^{3-5}$toŋ$^{5-3}$ nyi$^{3-1}$ naŋ$^{3-5}$ la$^{1-3}$

[(person do (work))] [be at middle field]

$tʂo^{3-5}$ la^{1-3}

[(plant field)]

The [Subject] phrase, which here consists of a compound within a compound, is separated from the [Verb] phrase, also a compound, by an intervening [Location] phrase.

(8) After the pigeon is released it can return.

$ta^{5-5}ŋGo^{3-1}$ $tʏiaŋ^{3-5}$ $moŋ^{3-1}$ $tʏi^{5-3}tʂei^{3-5}$ $ʂei^{5-3}$ $tʂaŋ^{5-3}$

[pigeon] [release go afterwards] [can return

lo^{3-1}

come]

Compare the Chinese use of morphemes asthat glossed come, as either verb phrase nucléus or as verb complement.

The first syllable of the word for pigeon above, ta^{5-5}, is a prefix which occurs with a number of nouns , e.g. $ta^{5-5}nu^{3-5}$ bird, $ta^{5-5}qa^{3-5}$ chicken, $ta^{5-5}mei^{3-1}$ horse, when they are not preceded by either a classifier or possessive. These nouns occur without prefix when preceded by numeral plus classifier or person marker plus genitive particle, e.g.,

one horse, a horse

a^{5-5} $ŋoŋ^{3-1}$ mei^{3-1}

one classifier horse

my horse

$wɛ^{3-1}$ $naŋ^{3-1}$ mei^{3-1}

I genitive particle horse

So also, the prefix ko^{5-3} occurs with certain other nouns, e.g. $ko^{5-3}to^{3-5}$ axe in (3) above, $ko^{5-3}ndeŋ^{3-1}$ knife and $ko^{5-3}nɛ^{5-3}$ person, but

your knife

$mə\wedge^{3-1}$ $naŋ^{3-1}$ $ndeŋ^{3-1}$

you genitive particle knife

this man

a^{5-5} $lɛ^{3-1}$ $nɛ^{5-3}$ $neŋ^{3-1}$

[one classifier person this]

(9) Winter is very cold here.

$ŋaŋ^{5-3}$ $noŋ^{3-5}$ ta^{5-3} $neŋ^{3-1}$ $tə\wedge^{5-3}$ $tə\wedge^{5-3}$ $noŋ^{3-5}$

[(season cold)] [place this very very cold]

Modified-modifier order is shown in both phrases of this sentence, [(season cold)] and [place this ... cold]; it is also shown in [language Miao] in sentence (4), and in

silver bracelet

$qh_o^{5-5}po^{3-5}$ $ŋoŋ^{3-1}$

bracelet silver

short garment

$a\wedge^{3-1}$ $lɛ^{3-1}$

garment short

my good friend

$wɛ^{3-1}$ $naŋ^{3-1}$ $kə\wedge^{5-3}bu^{3-1}$ $ma^{5-3}ʒu^{3-5}$

[I genitive particle (friend) adj. prefix — good]

Modifier-modified order is shown in numeral-classifier and possessive constructions (one classifier horse and you genitive knife, under sentence (8), above), and also in

a big mountain

a la^{3-1} $ma^{5-3}{}_{lio}{}^{3-1}$ $pi^{5-5}qa\wedge{}^{3-1}$

[one classifier adj. prefix — big mountain]

gate

$mie\eta$ dzu^{3-1}

(big door)

Compare the compound for winter in sentence (9), in which modified precedes modifier.

Both modified-modifier and modifier-modified orders occur with modifiers of modifiers; compare [place ... very very cold] in sentence (9) and

a very big mountain

a^{5-5} la^{3-1} $pi^{5-5}qa\wedge{}^{5-3}$ $to\wedge{}^{5-3}{}_{to\wedge}{}^{5-3}$ lio^{3-1}

[one classifier mountain very very big]

with

a very big mountain

a^{5-5} la^{3-1} $pi^{5-5}qa\gamma^{3-1}$ lio^{3-1} $he\eta^{3-5}$

[one classifier mountain big very]

Some adjective-like modifiers are preceded by a prefix ma^{5-3} or $ma\eta^{5-3}$ when not in compounds (as that for winter in the first phrase of sentence (9) above), and when not themselves modified (as by very in the

last phrase of sentence (9) and in the two examples immediately above). The list of such prefixed modifiers includes $ma^{5-3}noŋ^{3-5}$ cold, $ma^{5-3}ʒu^{3-5}$ big and $ma^{5-3}lio^{3-1}$ big.

3.2. Fang-Kuei Li reports that there are at least four dialects of Yao, but that the interintelligibility possibilities among them are not known. One suggested main division for dialects within the Yao branch is between the mainland dialects spoken in Yunnan, Kwangtung, Hunan, Kwangsi and beyond China in North Vietnam, north Thailand and Laos, on the one hand, and Yao spoken on the island of Hainan which is often mistakenly supposed to be Miao. This division may separate Yao into two languages; or the four dialects known to Li may represent as many as four separate Yao languages.

The provenience of the Yao is in general east and south of the Miao in China (3.1, above). It is said that the Yao and the Miao in Laos, Vietnam, and north Thailand are recent immigrants to those countries — mostly last century immigrants (Halpern, 1960).

In 1956 there were estimated to be 660,000 Yao in Kwangsi, Hunan, Kwangtung and Yuran, but we found no estimate for the number of Yao on Hainan. A 1951 estimate gives 4,000,000 as the total number of Yao speakers in China, Vietnam, Laos and Thailand, but the magnitude of this estimate suggests that it is a combined figure for Yao and Miao.

The Valley Yao (Lanten) and the Highland Yao are but two names for many tribally distinct dialects and cultures. Though the She language is

unknown, the She societies in the mountains of the southeast coast of China are supposed to be culturally very much like the Yao. Downer (BSOAS 24:3, 1961) confirms that the so-called Miao of Hainan Island are Yao in language (as well as in culture), and points out that there is close correspondence between the Miao languages and the Highland Yao language, even though the sound correspondences have yet to be worked out in detail.

Downer gathered information on Highland Yao in northwest Laos, in the villages of P'u K'amteng and Chungliang, which are homogeneous in dialect, a dialect which is said to be almost identical with P'anku Yao spoken in the Kwangsi province of China.

In the P'u K'amteng-Chungliang dialect, stop consonants distinguish unaspirated / p t c k kʸ/ from five matching aspirated stops and matching voiced stops. So also the nasal consonants distinguish voiced / m n ŋ/ and / nʸ/ from four aspirated (preaspirated or voiceless) nasals; and the voiced lateral / l/ is distinguished from the aspirated lateral / hl/ . But beside the three series of stops, and the unaspirated-aspirated contrast in nasals and lateral, there is only a single series of fricatives, / f s h/ . All these consonants occur as initials; the palatalized stops and nasals might be analyzed as initial clusters of stop or nasal plus / y/ .

Though neither / y/ nor / w/ are listed among the initials of Highland Yao, they are listed among the finals, which also include three nasals / m n ŋ/ and three stops / p t q [ʔ] / . Hence semivowels occur only as finals, while most fricatives, all palatalized consonants, and all aspirated

nasals and stops, including the affricates, occur only as initials. So also voicing of stops is contrastive only initially.

The consonant set for initials can be grouped according to their compatibility with tones (see below). Aspirated initials and the fricative /f/ are compatible only with tones 1, 3, 5, 7. Other initials are compatible with all eight tones. Stops as finals are compatible with tones 7 or 8 only.

The vowel contrasts are uncertain, for some vowels in Highland Yao appear only in rare words, apparently borrowed from Fuchow Min. It is possible that the vowel system is of the 3 (FCB) type, with front-central-back contrasts made at three tongue-heights:

high /i ɨ u/ (with /ɨ/ rarely found),

mid /e ə o/ (with /ə/ restricted in distribution),

low /ɛ a ɔ/.

Long /aa/ also occurs in some loanwords.

The eight tones are described as mid-high, level (1); mid-high, falling (2); high, rising then falling (3); low, rising then falling (4); mid-low rising to mid-high (5); very low, falling slightly, with some glottal closure (6); high, and level before /q [ʔ]/, but rising before /p t/ (7); low level (8).

For the Yao spoken in Pa-P'ai in northeastern Kwantung, Fang-Kuei Li gives the following phonemic inventory.

Initial consonants:

p	t	t^y	k	ʔ
b	d ḍ		g	
f		s^y		h

v

m n ṇ nʸ ŋ

l y

Final consonants:

p t

m n ŋ

Vowels:

i u

ɛ o

a

Plus syllabic /m̩/ and /ŋ̩/

Plus diphthongs with final /i/ and /u/ — an alternative analysis to Downer's introduction of final /y/ and /w/.

Tones:

(1) high falling (52)

(2) high level (44)

(3) mid level (22)

(4) mid falling (31)

(5) low level (11).

SUPPLEMENT TO SINO-TIBETAN FASCICLE ONE

1.6.0. This section, numbered 1.6 — with a following digit to distinguish sub-sections — was intended, in the planning stage of the Languages of the World fascicles, as the concluding section and therefore part of Sino-Tibetan Fascicle One. It is now placed, as a belated insert, in Sino-Tibetan Fascicle Three. The reason for not including 1.6 in Fascicle One, where it clearly belongs, was that at the time the first fascicle was ready for publication we had not yet obtained a translation of a crucial source of information for Chinese dialects. Rather than waiting for the availability and the translation of this crucial source, we published Sino-Tibetan Fascicle One as it now stands — up to and including the section 1.5.

Before turning to the Chinese phonologies below — the delayed 1.6 supplement — we refer back to Sino-Tibetan Fascicle One and restate the scope of the 1.5 section: namely, to indicate the types of differences which diversify the Chinese languages and dialects (other than phonemic inventories, now appearing for the first time). The non-inventory differences are summarized as belonging to four types:

(1) Differences in the shape of morphemes in the modern languages that are descended from a single parental or reconstructed morpheme. Resemblance among such cognate morphemes remains, as in the forms cited in 1.5 for ten (with final consonant preserved in the Cantonese form,

not in the Mandarin form).

(2) Differences in the shape of morphemes which are glossed identically, but are not cognate and do not resemble each other because they are different in etymon. Indeed, for who a single Mandarin morpheme is cited in 1.5, but a sequence of two Cantonese morphemes; conversely, for clothing a single Cantonese morpheme is cited, but a sequence of two Mandarin morphemes in compound.

(3) Selection in one Chinese language may entail a structural restriction not found in another.

(4) After the fashion of contrastive grammar, a wide scatter of Chinese languages and dialects are shown in 1.5 to have occasional structural differences when compared with the sentence profiles of 61 sample sentences given in 'acquired Mandarin' in 1.4 of Sino-Tibetan Fascicle One — namely, the sentences numbered (1), (5) to (8) inclusive, (10) to (15), (18) and (19), (21) to (32), (34), (37) to (44), and (49) to (55).

All of the differences noted in 1.5 of Fascicle One, and also the phonemic inventories given here as the 1.6 supplement, conspire to attest the diversification of what we call the ethnolinguistic monolith (Han Chinese) into a half dozen or more major Chinese languages. These are more or less mutually unintelligible to each other, and have native language speakers located in different provinces of China, or different parts of the same province. It is easier to give vague geographic locations for the major divisions of the ethnolinguistic monolith than it is to give even vague attestation of dialect

distance or diversity within any major division.

A paper prepared before the Language Files were developed for publication (Languages Now Spoken by Over a Million Speakers, AL 3:8.13-22, November, 1961) ascribed the half dozen Chinese languages to different parts of China, in a very rough and ready way:

Mandarin (North)

Wu (Shanghai)

Cantonese (Canton)

Min (Fukien, Taiwan)

Hakka (Kwangtung).

In a personal communication to Fang-Kuei Li and to us (December 19, 1961), Y. R. Chao urged that we try to make the geographic identifications of the languages and dialects a little more uniform — by city or by province. Such an attempt appears in the list of contents for 1.6, above: Wu, Cantonese, North Min, and South Min are followed parenthetically by city names; nothing follows after Hakka, Hsiang, and Mandarin, but it would be possible to list province names opposite the language names in the second half of the list. For the whole, a combination of city names and province names are called for in a minimum identification of the location of speakers of Chinese languages and dialects. The minimum identification which now follows gives information contributed by Y. R. Chao (personal communication), supplemented by sources cited in 1.6.1 to 1.6.7, below, as well as in the immediately following paragraphs.

Wu dialects (Su Chou and Wen Chou; Tangsic — the dialect of the village of Tangsi; Shanghai and Soochow) are spoken in the southeast of Kiangsu province and in most of Chekiang province, from north to south respectively, both bounded on the east by the East China Sea. The urban foci of Wu dialects are Shanghai and Soochow. Though Soochow, the culture center of Wu, is only 80 kilometers distant from Shanghai, Soochow speech is dialectically distinguishable from the speech of Shanghai, the commercial center. W. A. Grootaers (Orbis I:1.82-83) cites forms from the Soochow dialect which distinguish men's speech from women's speech (different nasal initials for 1st person singular), and a phonetic difference in the production of a front vowel — the higher variant characterizing speech of women and children, the lower that of adult men. In 1.6.1, below, we summarize phonological information suggestive of the relatively slight extent of dialect differentiation within Wu (from our crucial source, from George Kennedy and from Paul K. Benedict; Floyd Lounsbury has in preparation a fuller analysis of Wu of Shanghai).

Cantonese (of Canton City, of Tai-Shan, of Lungtu and of other districts) is spoken in central and western Kwantung province where the urban dialect of Canton is regarded as the Standard. Y. R. Chao's Cantonese Primer (1947) has its character text all in the written style, which the student needs to know, 'since radical indices are based on printed style'. Chao points out that there is considerable variety among Cantonese speakers: a fourth of them begin certain syllables by selection from a few vowels; three fourths of them begin the syllables in question with a velar nasal. In a 1958 book, Parker Huang

and Gerard P. Hak, for pedagogical purposes, give the dialect as spoken in Canton City to serve as an introduction to a language said to include dialects spoken in the western half of Kwangtung province and the southern half of Kwangsi province; most of our sources, however, mention only Kwangtung province as the provenience of Cantonese. In 1.6.2, below, we summarize phonological information suggestive of the considerable extent of differentiation among Cantonese dialects (from our crucial source, from Paul K. Benedict, K. P. K. Whitaker, K. M. A. Barnett and Yuen Ren Chao for Canton City; from Chao again for Tai-Shan, and from Egerod for Lungtu).

Min dialects are spoken both on the mainland in Fukien and across the Formosa Strait on Taiwan. But since North Min and South Min are hardly mutually intelligible, as Yuen Ren Chao puts it, we treat the two as two separate languages: North Min (with Foochow as standard) and South Min (with Amoy as the standard — not only in the city of Amoy, but in all of Taiwan).

The slight differences that appear in the phonologies of North Min may be due as much to diversity in phonemicization as to diversity among idiolects of North Min. In 1.6.3, below, we summarize the North Min phonology (a) of our most recent source, (b) of an earlier 1928 source, and (c) of Søren Egerod.

South Min, with Amoy as standard, is spoken on both sides of the Formosa Strait, as already mentioned. Some South Min dialects seem phonologically close to Amoy, as for example in Egerod's 1956 report on the dialect of Swatow, spoken in a city which is geographically quite far south of the city of Amoy. The pedagogical nature of N. C. Bodman's Spoken Amoy

Hokkien, Kuala Lumpur, 1955, made excerpting difficult for our purpose, but Bodman certainly demonstrates that this South Min dialect spoken by Overseas Chinese in Malaysia differs little from standard Amoy. For example, instead of the two co-existent vowel systems reported in our 1930 source (showing different vowel contrasts for nasalized than for oral vowels) we find a single vowel system in Bodman's Overseas South Min — a five vowel system making the same positional contrasts for nasalized as for oral vowels. It is known that most Overseas Chinese in far-flung Indonesia are speakers of South Min, but it is not known exactly which South Min dialects they speak. There is good information in hand, however, to suggest that differences between South Min dialects are not always as slight as those so far indicated. In 1.6.4,below, we summarize phonological information which seems to point to relatively great differentiation among some South Min dialects. This information is excerpted from our most recent source, from an earlier 1930 source, and from Tung. However, Tung's dicta emphasize the similarities rather than the differences in a set of ten or more southern Fukien dialects — of which Amoy is one — spoken on the coast of China in the Ch'ao Shau area.

Hakka dialects are spoken in the eastern third of Kwangtung province, and in most of Kiangsi province. Our most recent source provides us with one phonemic inventory for Hakka. Besides this, Egerod describes the Chungshan variety of Hakka, spoken for the most part in the fifth /k^h ü/ of Chungshan hsien, north of Macao. In addition, Tung describes the variety of

Hakka now spoken in the Hua-yang District of Szechwan; and Tung points out that the forbears of these Hakka speakers entered Szechwan province during the Manchu Dynasty (Ching), coming originally from the Wu-hua District in Kwangtung province, by way of Hunan and Kweichow provinces — according to traditional rather than written history; and this particular tradition is attributed to a specific informant, known as 盧光泉. All of our Hakka sources are summarized in 1.6.5, below, including an earlier source, Vǒmel (1913), who does not distinguish between the Hakka dialect which he describes and other widely distributed Hakka dialects; the latter are simply called 'sub-dialects'.

Hsiang (Hunanese) dialects are spoken in Hunan province, southwest of Anhwei province. In the southern part of Anhwei there is a dialect i sland in which Hueichou is spoken. It remains for further work to determine whether Hueichou belongs to the Hsiang group of dialects, or is a divergent member of the otherwise little differentiated Wu dialects (with Shanghai as commercial standard, and Soochow as culture standard). The Hsiang dialects are more differentiated than any of the others mentioned so far (but not as differentiated as the Mandarin dialects). In fact, the extraordinarily complex half of the Hsiang dialects that are spoken along the Hsiang river and along the Yuan river bear general similarity to the southwestern Mandarin dialects, according to Shih-feng Yang. In 1.6.6, below, we summarize Hsiang diversity as it is reflected in phonological information, summarizing from our crucial source, from J. R. Firth and B. B. Rogers, and from Yang.

Mandarin dialects are often said to fall into three groups (North, West and Southwest); sometimes a fourth group (Central east) is added, making a total of four groups. In his 1948 Mandarin Primer, Chao localizes three groups of Mandarin dialects, as follows:

Northern: Yellow River basin and Manchuria, including Peiping (Peking);

Southern: Hankow (romanized Han K'ou in 1.6.7, below) and Nanking;

Southwestern: Szechwan, Yunnan, Kweichow, and parts of Kwangsi and Hupei provinces.

Our most recent source supplies us with a half dozen different phonemic inventories for as many different Mandarian dialects, of which Peking is on. In our summary of Mandarin, 1.6.7, below, we designate three of these as a Peking type of Mandarin dialect (a type which makes six or more linear distinctions for stops) — namely Peking itself, Chi Nan, and Hsi An; and we designate the remaining three dialects in this sample the Han K'ou type (a type which makes only five linear distinctions for stops) — namely, Han K'ou itself, T'ai Yuan, and Ch'eng Tu. The sole purpose for setting up this impromptu typology is that it permits one to show clearly how the different phonemicizations of a single Mandarin dialect (of the Peking standard, for example) differ greatly from one another — so greatly, indeed, that the diversity in phonemicizations exceeds the differences among the Peking type and the Han K'ou type of Mandarin dialects, as described in our most recent source.

That source is crucial for evaluating differences among Chinese dialects and languages precisely because it gives an analogous perspective for all. Analogous descriptions — descriptions reflecting the same biases, the same sophistication and also the same naïvete in phonemicizing — are reflected in the sample of all Chinese languages and dialects given by our analogous source (as we shall hereinafter designate it), the title of which is romanized as Hanyu Fangyan Gaiyao (Peking, 1960, pp. 10 + 330); the main author's name (not romanized in the publication, but romanized for us by Fang Kuei Li) is Yuan Jia Hua. Since its publication over five years ago, the book has not been available for purchase outside of Communist China; nevertheless, of the copies which have been brought to this country we know of two, one in the possession of Fang Kuei Li, and the other in the possession of N. C. Bodman. Beverly Hung supervised Cheng's excerption of the phonemic inventories in this book during the 1965 Linguistic Institute at Indiana University. We restate all of the excerptions in 1.6.1 to 1.6.7, below, but we do not thereby rephonemicize them. And we use the phonemications from our analogous source as a point of reference in introducing other phonological information from other sources.

We need to be concerned not only with diverse phonemicizations and the problem this presents in distinguishing three or four groups of actually different Mandarin dialects; another problem or process impinges on this — namely, the much reported increase in the use of Mandarin in Communist China. In Sino-Tibetan Fascicle One, we proposed the term 'acquired

Mandarin' for the kind of Mandarin spoken by Chinese whose native language is Wu or Cantonese, for example; and it is almost inevitable that there will be a half dozen varieties of 'acquired Mandarin', since speakers of a half dozen different Chinese languages are now acquiring Mandarin (Peking standard), as a second language.

Some Overseas Chinese have become as animated over acquiring Mandarin as have non-Mandarin speakers in Communist China itself, but for different reasons. In some parts of the world, modern Chinese parents who maintain Chinese culture are aware that their children or grandchildren do not; at most the children possess something of a relic of Chinese culture, a shadowy memory of Chinese traditions — in short, Chinese ethnicity rather than Chinese culture.

This is so especially in such countries as that surveyed by Ng Bickleen Fong, The Chinese in New Zealand: A Study in Assimilation (Hong Kong University Press, 1959), where the Chinese tend to be interspersed among the rest of the population. According to the 1951 census, the predominantly Cantonese population in New Zealand numbered 4,832, of whom 891 were part Chinese and part Maori or part English; there were then no Mandarin speakers. But today some Chinese in New Zealand are learning Mandarin, (a) partly out of political interest in Modern China; (b) partly because schools and available books which offer instruction in Chinese offer Mandarin rather than Cantonese; (c) partly because the younger generation is so intrigued with its Chinese ethnicity that it wants a less shadowy cultural expression. The

question then is, how can a young Chinese in New Zealand acquire more substantial Chinese culture? There are no Chinatowns in New Zealand, no tongs, no joss-houses, no public display of Chinese festivals; but there is continuing letter exchange with relatives in China, and a warm kinship identification with the on-going cultures of mainland China and of Taiwan. Parents and grandparents speak Cantonese to each other, but the third generation Overseas Chinese speaks only English, according to Fong; but we have other evidence that points to the possession of passive knowledge of Cantonese by Chinese of high school and college age in New Zealand (Patrick Hohepa, personal communication, 1965). Such youngsters are today dreaming of returning to China where they will look like Chinese but talk like foreigners, unless they learn Chinese in school, or study it on their own. In the latter category is a Chinese girl (well known to the Hohepas) who has finished high school, and is now devoting all her free time, day and night, to the study of Mandarin — out of books and from phonograph records. Her parents were born in China, and she still speaks Cantonese to them, beside studying Mandarin intensively. When she arrives in China, she will be understood in Mandarin but recognized as yet another Chinese who has acquired Mandarin after having learned another Chinese language first. Such 'acquired Mandarin' is quite different than Mandarin with foreignisms in phonology or grammar, such as one might speak if one learned Mandarin as a second language having a non-Chinese language as one's first language.

1.6.1. For Wu, our analogous source (cp. 1.6.0) gives two phonemic inventories, one for the Su Chou dialect and another for the Wen Chou dialect. By restating our source, it is possible to present one unified inventory for Wu — an inventory which gives the same linear distinctions, insofar as these are shared by both dialects, and which gives the same Series Generating Components (herinafter, SGC), insofar as these are also shared.

Differences between the two dialects, as reported in our analogous source, are for the most part extensions or restrictions on the combinability of an SGC in the generation of an additional series. For example, an SGC of aspiration combines with all the unaspirated stops (hereinafter termed plain stops), and thereby generates an additional series of aspirated stops in both; another SGC (that of voicing) combines with all plain stops in Wen Chou, but with some rather than all in Su Chou. Though the voiced series appears in both Wu dialects, that of Wen Chou makes five linear distinctions; in the other Wu dialect, however, there are only four linear distinctions in the voiced stop series, as is shown below in the paragraphs following the unified chart for Wu initials.

All that is meant by 'linear distinctions' is the number of distinctions made in a given series in the inventory; in other words, the linear distinctions are the distinctions represented by letters written on one line for each series in the inventory — written from left to right to indicate roughly the position of the crucial articulator, following a front to back order.

Numerical indicators of linear distinctions are given at the top of each

chart (both here, and in the charts which follow for other Chinese languages):

1 stands for lip (labial) articulator;

2 for tongue-tip articulator;

2+ for tongue-tip articulator plus fricative off-glide (in the production of affricate stops, while sibilants without prior stop are listed under plain 2);

3 for tongue-blade articulator (in the production of palatalized consonants);

4^2 for lateral tongue production of the lateral liquid /l/ in which actual contact is made by tongue-tip articulator, as for the /r/ liquid — hence /r/ is listed under 2, but /l/ under 4^2;

5 for back-tongue or dorsum articulator;

6. for laryngeal-pharyngeal articulator in the production of /h/ and voiced /ɦ/.

Note that it is the muscular articulator that is numbered in this scheme for pin-pointing linear distinctions; the precise place at which the articulator makes contact is not explicitly specified. In a few cases where we have made isomorphic substitutions in the phonetic alphabet, the numerical indicator will guide the reader to the value given in our source.

Unified chart for Wu initials

	1	2	2+	3	4^2	5	6
Stops	p	t	ts	tʸ		k	
Nasals	m	n		nʸ		ŋ	
Fricatives	f	s		sʸ			h
Liquid					l		

SGC of aspiration combines with all plain stops, yielding an aspirated series of stops, namely /p' t' ts' tʸ' k'/, in both Wu dialects.

SGC of voicing combines with plain fricatives at 1, 2 and 6 (but not at 3), yielding a voiced series of fricatives, namely /v z ɦ/, in both Wu dialects; the same SGC combines with all plain stops in Wen Chou and with all plain stops except that at 2+ in Su Chou, yielding a voiced series of stops in both Wu dialects, but one which makes five linear distinctions in Wen Chou (namely, /b d dz dʸ g/), and only four linear distinctions in Su Chou (namely, /b d dʸ g/).

For finals, we juxtapose those appearing separately (for Su Chou and Wen Chou) in our analogous source without, however, attempting a unified restatement.

Wu finals in vowel(s)

Su Chou:

ɿ	ʯ	ɪ	ɒ	o	ɛ	æ	ø	əu
i			iɒ	io		iæ	iø	
u			uɒ		uɛ		uø	
ŭ		ʏ						

Wen Chou:

ɿ	a	ɔ	o	ø	ɜ	ɐ	ɛ	ai	ei	au	əu	øŭ	ŋ̍
i	ia					iɐ	iɛ	iai		iau	iu		
u	ua	uɔ						uai					
ŭ		ŭɔ	ŭo										

Wu finals ending in non-syllabic nasal

Su Chou:

ən aŋ ɒŋ əŋ

in iaŋ iɒŋ iəŋ

uən uaŋ uɒŋ

ün

Wen Chou:

aŋ oŋ əŋ

iaŋ

üoŋ

Wu finals ending in syllabic /l̩/ or syllabic nasal

Su Chou:

/l̩ m̩ n̩ ŋ̩/

Wen Chou:

/ŋ̩/

Su Chou finals ending in glottal stop

a? ɒ? ɛ? o? ɪ?

ia? iɒ? iɛ? io?

ua? uɛ?

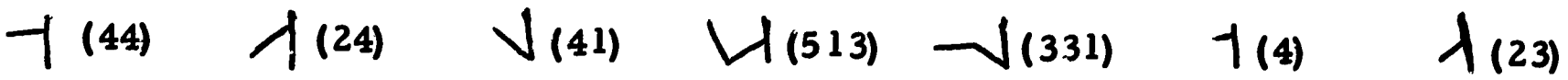
üa? üɛ?

Wu tones

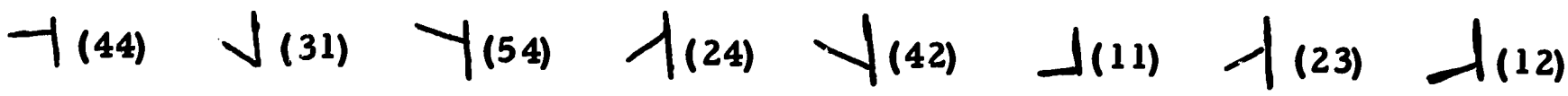
We count each phonemic tone as a different SGC, and the finals as listed above as dependent components since they appear cnly in combination

with one or another tonal SGC.

Seven tonal SGC's of Su Chou



Eight tonal SGC's of Wen Chou



George Kennedy phonemicizes what is termed above the SGC of 'voicing' as the SGC of 'aspirated voicing' (Voiced Gutterals in Tangsic, Lg 28.457-64), and includes in his bibliography the work of others on Wu dialects — Y. R. Chao, Bernhard Karlgren, and Nicolas C. Bodman. The phonemicization of Kennedy's Tangsic makes a contrast between /gh/, as one fricative or spirant, with /hh/ as another voiced fricative or spirant (equivalent to /ɦ/, above). And semivowels /w y/ are included in the Tangsic inventory, but not in the Wu inventories above.

The inclusion of such semivowels in the inventory of the phonemes of the Shanghai dialect of Wu permits Paul K. Benedict (JAOS 68.185-6) to analyze Shanghai tones into a pair of high and low series which have one set of tonal contrasts when the initial is surd or semivowel, and another set of tonal contrasts when the initial is a sonant. The environment for determining tonal allophones in the reduced phonemic series also includes the presence or absence of the glottal stop in finals (neutralizing tone), and the presence or absence of stress (not to be confused with tone; but stress reduces tone possibilities).

1.6.2. For Cantonese, our analogous source (cp. 1.6.0, above) gives one phonemic inventory.

Chart for Cantonese initials

	1	2	2+	3	4^2	5	5^1	6
Stops	p	t	ts	tʂ		k	kw	
Nasals	m	n				ŋ		
Fricatives	f	s		ʂ				h
Liquid					l			
Semivowels	w			y				

Six linear distinctions are made by the plain stops, all of which combine with an SGC of aspiration, yielding an additional series: /p' t' ts' tʂ' k' kw'/. The source lists zero, /∅/, among the initials, presumably to indicate the possibility of beginning without any consonant — i.e. with vowel — in the case of syllables which do not begin with one of the six unaspirated stops, or one of the six aspirated stops, or one of the three nasals, or one of the four fricatives, or the liquid, or one of the two semivowels.

Cantonese finals ending in vowel(s)

a	a:i	a:u
	ai	au
ɛ	ei	
œ	œʏ	
ɔ	ɔi	ou
i		iu
u	ui	
ʏ		

Cantonese finals ending in stop

a:p	a:t	a:k
ap	at	ak
		ɛk
	œt	œk
	ɔt	ɔk
ip	it	ik
	ut	uk
	ün	

Cantonese finals ending in non-syllabic nasal

a:m	a:n	a:ŋ
am	an	aŋ
		ɛŋ
	œn	œŋ
	ɔn	ɔŋ
im	in	iŋ
	un	uŋ
	ün	

Cantonese finals in syllabic nasal

m̩	ŋ̩

Six Cantonese tones

˥ (55) ˩ (11) ˧˥ (35) ˨˩ (13) ˧ (33) ˨ (22)

Two sets of four tones each are given for Cantonese by Paul K. Benedict

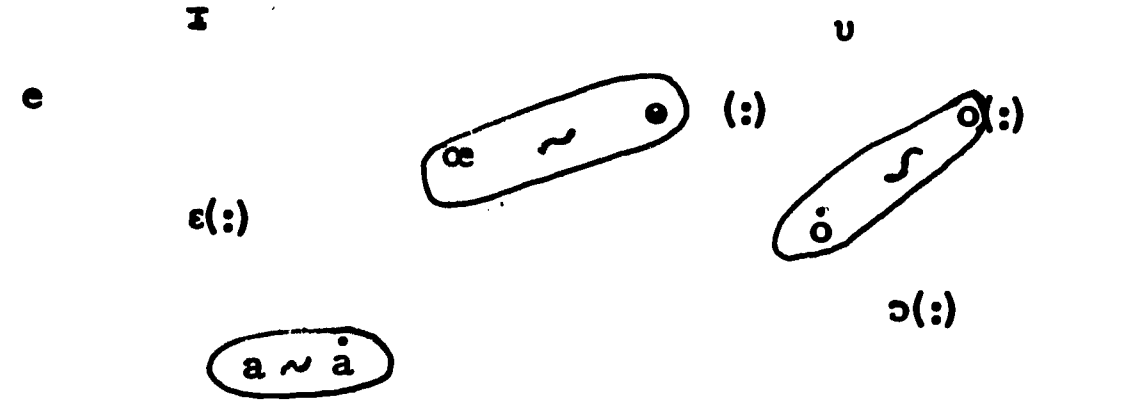
(JAOS 68.186):

1. high	I. falling
2. mid-high	II. high-rising
3. mid-low	III. mid-rising
4. low	IV. low-rising

In one environment (finals ending in vowel or nasal), all eight contrasts are realized; restricted tone contrasts are made in other environments, as in finals ending in stops; in longer stretches, as in phrase interior, tone I never precedes tone 1, nor do successive instances of falling tone occur in the same phrase.

In his 1954 Structure Drill in Cantonese, K. P. K. Whitaker ascribes ten tones to Cantonese, gives only one affricate, but adds a glottal stop to the unaspirated series.

K. M. A. Barnett distinguishes seven tones (rather than six or eight or ten) in Metropolitan Cantonese (BSOAS 13.725ff), and states that an SGC of length (:) combines with more than half of his vowel phonemes, using IPA symbols. Those paired symbols enclosed in loops in the following chart each represent allophones of a single phoneme, according to Barnett:



Yuen Ren Chao recognizes in the dialect of Canton City precisely the same linear distinctions as those given above, under Chart for Cantonese initials, and in addition also recognizes an SGC of aspiration which combines with plain stops and thereby generates a series of six aspirated stops. Chao may well be the primary source — i.e. our analogous source may be derivative from Chao for consonants. However, in his Cantonese Primer (Cambridge, 1947), Chao represents initials in two ways (one set to be used with the upper tones and the other set to be used with the lower tones). The corresponding consonant values for both sets remain the same. That is to say, instead of using diacritic marks to indicate tones, Chao incorporates tone specification in his system of romanization. And tones are regarded as equal in componential rank to consonants and vowels. Hence, instead of speaking of segmental and suprasegmental phonemes, Chao identifies the syllable as made up of three components: initial, final, and tone. All consonants occur as initials. Finals are made up of vowels with open ending, or vowels plus /w, y, m, n, ŋ, p, t, or k/.

Chao organizes eight Cantonese tones in terms of two registers of pitch (upper and lower); each register has three tones:

	Upper	Lower
Falling	53· (or 55:)	21:
Rising	35:	23·
Level	33·	22:

It is from the falling tones (upper as well as lower) that the great majority

of changed tones are derived:

	High-level	Low-rising
Changed Tone	55:	25:

(Pinnɛiam)

[Numbers in the preceding tone charts distinguish within a five-point time-pitch range, à la Chao.] Tone sandhi accounts for changes in certain tonal sequences, as 53: + 53: → 55: + 53:.

For vowels Chao gives:

i u

e ə o

a

e: a: o:

and notes the complementarity of /o/ (before /-w -ŋ -k/ as [o], but as [ɵ] before /-y -n -t/), and also the complementarity of /u/ (as [u:] after non-nasal labials and in syllable-initial, but as [ü:] after all other initial consonants except /ŋ/. Length of /a e o/ is semi-dependent on environment: always long in open-final syllables; short or long before final consonant. But /ə i u/ are always long. Syllabic nasals are /m̩ ŋ̩/.

Chao distinguishes three junctures (close, open, pause), and says that stress in non-phonemic.

Tai-shan Dialect

The Tai-shan dialect of Cantonese was recorded by Chao in San Francisco

from the speech of Wang and Li, coming from the Hsingning (Upper and Lower, respectively) section of Kwangtung. We note here a few points in which Chao's description of the Tai-shan dialect (BIHP 23.1, 1951) differs from his description of the dialect of Canton City (immediately above).

In the Tai-shan dialect, there are not six linear distinctions, but only five for stops — at 1 2 2+ 5 and 5^1, but not at 3; and SGC of aspiration combines with each of the five plain stops.

In the Tai-shan dialect, fricatives are not distinguished at 3; the non-distinction of /ɕ/ from /s/ is balanced in Tai-shan by having a voiceless lateral fricative at 4^3 (and this /ɬ/ appears in addition to the voiced liquid /l/ shared by both dialects). Though there are, for fricatives, four linear distinctions in both dialects, they are in part differently distributed:

	1	2	3	4^3	6
Canton City	f	s	ɕ		h
Tai-shan	f	s		ɬ	h

For nasals, liquid /l/, and semivowels, the Tai-shan dialect of Cantonese makes the same linear distinctions as does the Canton City dialect. Though initial allophones of the three Tai-shan nasals are [m^d nd $ŋ^d$], the final nasals are realized phonetically as in the Canton City dialect. Besides the two of the three nasals, /m̩ ŋ̩/, which can be syllabic, the liquid /l/ can be syllabic after the fricative /ɬ/ (in Wang's variety of Tai-shan), as well as after /t/ (both in Wang's and in Li's speech). The two informants also differ in their production of 'syllable finals':

/em en ep et/ (Li's speech);

/iem ien iep iet/ (Wang's speech).

In the Tai-shan vowel system — 2 (FB) over N — the allophones of each of the five vowels are environmentally distinguished as follows:

/i/ [ɪ] before /n ŋ t k/

[i] elsewhere

/e/ [ɛ] before /m n p t/

[ɔ] before /w y/

/ɑ/ [ɑ] normally

[a] in /iau/

[ɐ] before /ŋ k/

/o/ [ᵘo] before /n t/ or zero

[o] before /w m ŋ p k/

/u/ [u] before zero

[ʊ] elsewhere

There is relatively little tone sandhi in the Tai-shan dialect — less than in the Canton City dialect of Cantonese. The Tai-shan tones are numbered (1) to (8) inclusive. Tones numbered (5), (6), (7) appear only in combination with stop-closed syllables, and are in complementary distribution with tones (3), (1), (4), respectively, since the latter appear only in combination with syllables other than those closed by stops. Hence the five tone phonemes which the Tai-shan dialect distinguishes are:

(1) mid-level 33: ~ (6) mid-level 33:

[despite identical phonetic specification for these two tones, the Chinese character label for tone (1) differs entirely from the character label for tone (6)]

(2) low-level 11:

(3) high-rising 45: ~ (5) high-level 55:

(4) high-falling 42: ~ (7) mid-falling 32:

(8) modified tone 25:

Lungtu Dialect

The following charts give some indication of yet another Cantonese dialect, according to Søren Egerod's 1956 publication (Copenhagen).

In the Lungtu dialect there are five linear distinctions among stops, which differ from the six linear distinctions of the Canton City dialect at 2+, 3, 5^1 and 6:

	1	2	2+	2^3	3	5	5^1	6
Canton City	p	t	ts		$t\breve{s}$	k	kw	
Lungtu	p	t		ts		k		ʔ

The phonetic value of the single Lungtu affricate is [$ts^{\breve{s}}$] (i.e., with palatal off-glide; hence this phoneme is indexed 2^3 rather than 2+ or 3). Though /kw/ does not occur as a unit phoneme in Lungtu, it still does occur phonetically but is phonemicized as a consonant cluster. In both the Canton City dialect and in the Lungtu dialect of Cantonese, all plain stops are combinable with an SGC of aspiration, thereby generating an aspirated series with as many linear distinctions as are found among the plain stops. This statement is valid if plain stops are understood to be unaspirated oral stops, for then it can be said that all stops are oral stops in the Canton City dialect, while

oral stops include all stops except the glottal stop at 6 in Lungtu (and this non-oral stop is not matched by an aspirated glottal stop).

For fricatives, there are three linear distinctions in Lungtu, rather than the four of the Canton City dialect, since the sibilants /s š/ are not distinguished in Lungtu whose inventory includes only one sibilant.

The remainder of the consonant inventory is the same in both dialects. In Lungtu, the three nasals, the two semivowels, and the non-affricate oral stops (plus aspirated /k^hw/) appear in finals; these also occur as initials, as do the remaining consonants in the inventory, which occur only as initials (never in finals: two unaspirated stops (ts ʔ/, and all aspirated stops other than /k^hw/, and the three fricatives and the liquid /l/).

The Lungtu vowel system — 2 (FCB) over N — differs typologically from that of the Tai-shan dialect of Cantonese in having an additional central (C) contrast flanked by front (F) and back (B) vowel at each of two tongue-heights; in both dialects there is no contrast — i.e. neutral (N) contrast — at low tongue-height (and the /a/ in Lungtu may be geminated /aa/). The chart of Lungtu vowels, below, is followed by the seven tone distinctions in Lungtu:

	F	C	B
high	i	ɨ	u
mid	e	ə	o
		a	

low ˋ

high-rising ˇ

low-rising ˘

high-falling ˆ

low-falling ˜

1.6.3. For North Min (Fu Chou, Fuchow, Foochow, Fukienese) our analogous source (cp. 1.6.0) gives one phonemic inventory; we cite two other sources which give information on North Min: (a) Phonetics of the Foochow Dialect, BIHP 1.446-70 (1928), by Tao Yü-Min, and (b) Sǿren Egerod's analysis of Fuchow (Fukienese), in the publication already cited (Copenhagen, 1956).

For North Min consonants, our analogous source and our 1928 source are in essential agreement; the chart gives only plain consonants (in addition, an SGC of aspiration combines with all stops, generating a series of aspirated stops; and zero consonant might be specified for initials without any consonant).

Chart for North Min initials

	1	2	2+	3	4[2]	5
Stops	p	t	ts			k
Nasals	m	n				ŋ
Fricatives		s				x
Liquid					l	

There are four linear distinctions for stops, three for nasals, and two for fricatives (beside a single liquid; and our 1928 source adds a labial semi-

vowel, /w/). The chart includes the index number 3 for tongue-blade production of palatalized consonants, even though no entries appear under 3 to show a linear distinction between 3 and 2 or 2+; however, the allophonic range of phonemes listed under 2 and 2+ occasionally extends to 3 (e.g. [n ñ] for /n/, and [s z ž] for /s/).

Our 1928 source gives a 2 (FF° B) over N vowel system for North Min:

i ü u

e ö o

a

These are arranged (with /ø/ for /ö/, and generally /ɔ/ for /o/) in three different sets in our analogous source; note that the glottal stop occurs in finals, even though it is not included in the Chart for North Min initials (above).

Finals ending in vowel:

	a	ɛ	œ	ɔ	ei	ai	eu (ɛu)	au	ou	øü (əü)
i	ia						ieu			
u	ua			uɔ	uei	uai				
ü				üɔ						

Finals ending in velar nasal:

aŋ				
iaŋ	iŋ	eiŋ(aiŋ)	ieŋ	
uaŋ	uŋ	ouŋ(auŋ)	uɔŋ	
	üŋ	øüŋ(əüŋ)	üɔŋ	

Finals ending in glottal stop:

a?				ɔ?
ia?	i?	ei?	(ai?)	ie?
ua?	u?	ou?	(au?)	uɔ?
	ü?	ø̄ ü?	(ə̄ü?)	üɔ?

Beside two morphophonemic tones (high changed, and shortening of the tone numbered (4) below), seven tones are distinguished in both sources, though the phonetic specification of tones may not be identical in the two:

Our analogous source gives the following seven tones:

Our 1928 source gives the following seven tone specification:

(1) High-level

(2) Mid-falling

(3) Low-rising

(4) High-rising

(5) High-falling

(6) Mid-high

(7) High-shorter

Søren Egerod, our 1956 source, distinguishes five rather than seven tones for North Min, and adds a glottal stop which gives a fifth linear distinction to stops. However, he phonemicizes a semivowel series, /w y/, for finals only. He includes the glottal stop as an initial (as well as in finals — its only position in our two other sources), and includes /k/ in finals

(as well as as initial — its only position in our two other sources). And he gives the following value for /x/ — [x̟] before /i ɨ/, and [x] elsewhere. He ascribes essentially the same vowel system to North Min as that given above, but has front (F) and back (B) vowels not flanking front-rounded (F^o) vowels, but rather flanking central (C) vowels:

i ɨ u

e ə o

a

The two following morphophonemic and allophonic rules for syllable initial consonants in North Min are Egerod's (with /c/ for /ts/):

(1) after syllables ending in /ŋ/: /p, p^h/ → /m/; /t, t^h, s/ → /n/; /c, c^h/ → [nʸ]; /k, k^h, x/ → /ŋ/;

(2) after syllables ending in a vowel or semivowel: /p, p^h/ → [β]; /t, t^h, s/ → [$\underset{\cap}{l}$] (very lax l); /c, c^h/ → [ʒ]; /k, k^h, x/ → [zero].

1.6.4. For South Min, our analogous source (cp. 1.6.0) gives two phonemic inventories, one for the Amoy dialect and the other for the Ch'ao-chou dialect. It is not possible to give a single unified chart for South Min initials (plain consonants) and then show the different range of combination with SGC possible for each dialect (as it was, for example, in the case of the two Wu dialects, 1.6.1, above). What the two South Min dialects appear to have in common — from a glance at the pair of charts for consonant initials (below) — is the same linear distinctions for fricatives and nasals; and even this apparent agreement in the two inventories masks the fact that some

allophones of the nasals are non-nasals in Amoy.

Chart for Ch'ao-chou initials

	1	2	2+	4^2	5	6
Stops	p	t	ts		k	
Nasals	m	n			ŋ	
Fricatives		s				h
Liquid				l		

This chart shows four linear distinctions for unaspirated stops. Each of these four plain stops combine with an SGC of voicing as well as an SGC of aspiration, thereby generating a series of voiced stops (/ b d dz g/), as well as a series of aspired stops (/ p' t' ts' k'/).

The three nasals are phonetically nasals in all environments.

The glottal stop does not occur as an initial in Ch'ao-chou but is found in the following finals:

a?	o?	e?	au?	oi?	
i?	ia?	io?	iou?	iu?	
u?	ua?	ue?			

And, in addition, the glottal stop appears in one of three syllabic nasal finals: / m̩ ŋ̩ ŋ̩?/ .

The remaining Ch'ao-chou finals consist of open oral vowels, open nasalized vowels, and vowels closed by velar consonant (/ k/ or / ŋ/):

ɿ	a	o	e	ɯ	ai	au	ou		aŋ	oŋ	eŋ	ɯŋ
i	ia	io				iou	iu	iŋ	iaŋ	ioŋ	
u	ua		ue		uai		ui	uŋ	uaŋ		

	ã		ẽ		ãi	ãu	õu	õi		ak	ok	ek	ɯk
ĩ	ĩã	iõ						iũ	ik	iak	iok		
	uã		uẽ		uãi			ũi	uk	uak			

Chart for Amoy initials

	1	2	2+	4[2]	5	6
Stops	p	t	ts		k	ʔ
			dz			
Nasals	m	n			ŋ	
Fricatives		s				h

This chart shows five linear distinctions for unaspirated stops — the glottal stop beside four oral stops. Each of the latter combine with an SGC of aspiration, yielding an additional series of aspirated stops: /p' t' ts' k'/. However, what appears in this Amoy chart as nasals are not phonetically nasal in the environment NV (before oral vowel, the phoneme /m̩/ is phonetically [b], the phoneme /n̩/ is phonetically [l], and the phoneme /ŋ̩/ is phonetically [g]); in all other environments, the nasal phonemes are phonetically nasal consonants.

Among finals, there are two syllabic nasals: /m̩ ŋ̩/. The glottal stop appears as an initial (in Amoy but not in Ch'ao-chou), as well as in finals (in both South Min dialects); but in Amoy the glottal stop in finals appears only after oral vowels (never after syllabic nasal);

	a?	o?	e?	
i?	ia?	io?		
u?	ua?		ue?	ui?

The remaining Amoy finals consist of open oral vowels, open nasalized vowels, and vowels closed by any one of the three nasals or any one of the three non-affricate plain oral stops:

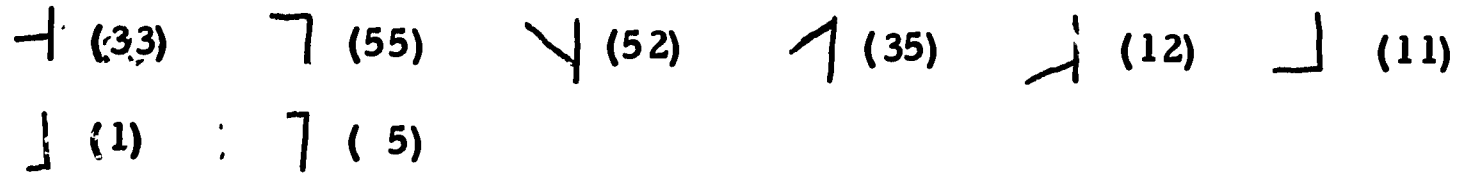
	a	ɔ	o	e	ai	au		am		an		aŋ	ɔŋ	
i	ia		io				iu	iam	im	ian	in	iaŋ	iɔŋ	iŋ
u	ua			ue	uai	iau	ui			uan	un	uaŋ		
	ã	ɔ̃		ẽ	ãi	ãu		ap		at		ak	ɔk	
ĩ	iã					iãu	iũ	iap	ip	iat	it	iak	iɔk	ik
	uã				uãi		ũi			uat	ut			

Despite the differences noted in the two South Min charts (above), and the comment appended to them, there is much that is common to both dialects. The oral stops are the same, and in both dialects these stops are combinable with SGC of aspiration. Phonetically, the voiced stops [b g] are heard in both dialects (as part of a full series of voiced stops in Ch'ao-chou, but as allophones of nasal phonemes in Amoy). So also, the liquid [l] can be heard in both dialects (as a phonemic contrast in Ch'ao-chou, but as an allophone of /n/ in Amoy). A zero consonant initial may be specified in both dialects (for phonetic vowel initials). The phones of South Min dialects are less diversified than are their phonemes.

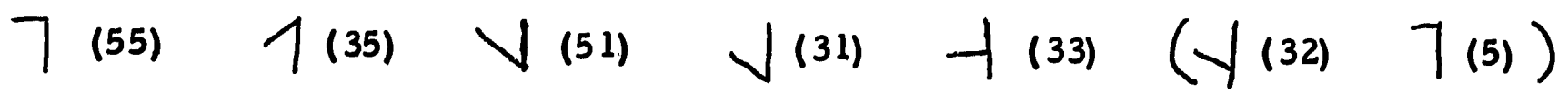
The two preceding charts and the commentary following each are meant to emphasize the fact that it is only the fricatives that are phonemically as well as phonetically the same in both South Min dialects, as phonemicized

by our analogous source.

The tones certainly seem quite different — eight tones distinguished by our analogous-source for Ch'ao-chou:



and five tones (plus a parenthetic pair of additional tones) for Amoy:



Other sources for South Min dialects offer slightly different phonemicizations. Thus, Lo Ch'ang P'ei, in Phonetics and Phonology of the Amoy Dialect (BIHP Monograph A, 4, 1930), says in effect that an SGC of voicing combines with plain stops at 1 2+ and 5 (but not at 2). There are two co-existent vowel systems in Amoy, according to this 1930 source — for oral vowels, a 3(FB) system; for nasalized vowels, a 2(FB) over N system:

i	u	ĩ	ũ
e	o	ẽ	õ
a	ɔ	ã	

The glottal stop is said to occur initially before vowels, and finally after vowels of syllables bearing tones numbered (2) and (6) in a seven point tone range:

(1)	high	55
(2)	mid high	4
(3)	mid	33
(4)	low	11

(5) high fall 51

(6) mid fall 32

(7) rise 24

T'ung-Ho Tung, in Phonology of the Amoy dialect, BIHP 29:1.231-53 (1957), says that Amoy is one of more than ten dialects of southern Fukien (South Min). The phonemic inventory of initials given by Tung is identical with that of our analogous source, as reflected in the Chart for Amoy initials (above). Of the rather asymmetrical voiced affricate in this chart, /dz/, Tung says 'a large proportion of idiolects are deficient in this phoneme', a phoneme bearing a high enough functional load, but a function often shifted to another phoneme /n/, with allophone [l] before oral vowels (in the idiolects of many Amoy speakers: where some say /dzit^{11} t'au^{14}/ for sun, many say/nit^{11} t'au^{14}/). In the chart for Amoy initials, those listed under 1 (labial) are all bilabial, according to Tung; those listed under 2+ (and /s/) might just as well have been listed under 3, since they are clearly palatalized before high front vowels (and /dz/ occurs only in this environment). Tung also points out that the glottal stop (appearing in our chart among initials) alternates with zero in some dialects; and for this and other reasons, it is said to be non-phonemic as an initial. According to our translator of Tung (R. B. Morse), the seven Amoy tones are analyzed morphophonemically (rather than phonemically):

(1) mid-high level 44: ¬ with sandhi tone 33: lower.

(2) low rising, 14: ˩ or 24: sandhi tone 11 with some speakers with

dropping off glide, and also tone 33 with some speakers.

(3) high falling, 53: ˥˩ with sandhi tone 55: ˥

(4) low level 11: ˩ with sandhi tone high falling to low 51: ˥˩

(5) mid-level 33: ˧ with sandhi tone 11: with lowering off glide

(6) mid-falling 32: ˧˩ occurs only with closed syllables with final stop, and abrupt (or short) with 2 sandhi tones: [4] ~ [54] in syllables with final stop, [53:] in syllables originally with final glottal stop which has been lost. Some words with final glottal never exhibit this final glottal except in sandhi form, thus becoming like syllables with -p, -t, -k final. Thus they can be put together as one mid-falling tone which changes to mid-high level, [4].

(7) short, mid-high level 44, occurs only with closed syllables with final -p, -t, -k, -ʔ and so may be equated with tone(1), mid-high level, with forms with final stop exhibiting sandhi form 11 with the final stop, except glottal, which exhibits sandhi form 11: but loses the glottal stop.

1.6.5. For a Hakka (Mei Hsian) dialect, our analogous source (cp. 1.6.0) gives a phonemic inventory which shows fewer linear distinctions than those listed in any other Hakka dialect cited below.

Chart for Hakka Initials

	1	2	2+	3	4[2]	5	6
Stops	p	t	ts			k	
Nasals	m	n				ŋ	
Fricatives	f	s					h
Liquid					l		

An SGC of aspiration combines with all stops, yielding /p' t' ts' k'/; and zero consonant is listed among the initials. (Space under 3 is filled in other Hakka dialects).

Hakka finals end in open vowels, or in any of the three non-affricate stops, or in any nasal (in addition, two nasal syllabics, /m̩ ŋ̩/, function as finals):

a	ai	au	am	an	aŋ	ap	at	ak
ia	iai	iau	iam	ian	iaŋ	iap	iat	iak
ua	uai			uan	uaŋ		uat	uak
e		eu	em	en		ep	et	
				ien			iet	
				uen			uet	
ɿ			əm	ən		əp	ət	
i		iu	im	in		ip	it	
o	oi			on	oŋ		ot	ok
				ion	ioŋ		iot	iok
				uon	uoŋ		uot	uok
u	ui			un	uŋ		ut	uk
				iun	iuŋ		iut	iuk

Six tones are distinguished:

˥ (44) ˩ (11) ˨˩ (31) ˥˩ (52) ˧˩ (21) ˥ˀ (4)

In the Hakka dialect spoken just north of Macao (on the coast opposite Hong Kong), there are five linear distinctions for stop initials (glottal stop in addition to the oral stops listed in the chart for Hakka initials, above); besides this, an additional series (semivowels / w y/) is recognized by Søren Egerod (A Sampling of Chungshan Hakka, in Studia Serica Bernhard Karlgren Dedicata, Copenhagen, 1959) who notes that the allophones of / w/ are [v] as well as [w]; and who notes also that both semivowels, the three nasals, and the non-affricate oral stops appear in finals. The stops in this position are always unaspirated and sometimes, interestingly enough, glottalized. When C is any consonant other than / ? n f w y/ , the initial cluster Cy is permitted. Egerod postulates a five vowel system of the usual 2(FB) over N type; and he distinguishes four tones:

/ high

\ low

ˇ rise

^ fall

In the Hakka dialect spoken in Szechwan, there are five linear distinctions for oral stops, namely / p t ts tš k/ (combinable with an SGC of aspiration); and four linear distinctions for the two remaining series, as follows:

	1	2	3	5
Nasals	m	n	ñ	ŋ
Fricatives	f v	s	š	x

T'ung-ho Tung, in describing these initials (A Hakka Dialect in the Hua-yang District, Szechwan, BIHP 19, 1948) notes the absence of /l/ in the inventory, but adds that [n l] are free variants of the /n/ phoneme.

Another source reporting on still another dialect of Hakka (Johann Heinrich Vömel, Der Hakkadialekt, T'oung Pao XIV, 1913), also reports five linear distinctions for oral stops, and four for fricatives, but only three for nasals (noting, however, that [ŋ ñ] are variants of /ŋ/).

Tung's vowel system for the Hakka spoken in Szechwan is curiously asymmetrical — (FF^{o} BB^{o}) over (FB) over N:

i ü ɯ u

ɔ o

a

Vowel allophones are in general distinguished by their association with one of two sets of tones, A or B, as the following examples show:

/ɯ/ [ɯ] with tones in set A

[ə] with tones in set B

/u/ [u] with tones in A

[ʊ] with tones in B

/a/ [a] with tones in A

[æ] with tones in B

Tones of set A:

(1) High-level ˥

(2) Low-rising ˧˥

(3) Low-falling ˩

(4) High-falling ˥

Tones of set B:

(5) Short-mid-falling ˀ˧

(6) Short-high-level ˀ˥

Syllables with a complex nucleus or with a nasal final can combine only with tones (1), (2), (3),(4) — that is, with a tone in set A. Besides finals ending in a nasal consonant, a final may consist of a nasal syllabic.

In Chao's 1948 Mandarin Primer, mention is made of the fact that some modern Chinese speech retains ancient Chinese /-m -p -t -k/ — namely Cantonese, Min, and Kan-Hakka. Since this implies that Kan is classifiable with Hakka, we give here the inventory provided by our analogous source for Nan Ch'ang (Kan):

Chart for Kan initials

Stops	[add / tš̆/ under 3 to Chart for Hakka initials, above]
Nasals	[shift of tongue-tip nasal under 2 in Chart, above, to appear as tongue-blade / ñ̆/ under 3]
Fricatives	[add / š̆/ under 3 to Chart, above]
Liquid	[as in Chart, above]

Appended comment for Kan: the same as that given under Chart for Hakka initials, at the beginning of this 1.6.5 section.

Six tones are also distinguished in Kan; their phonetic specification follows:

(42) (24) (213) (55) (31) (5)

Kan finals end in vowels (as they do in Hakka, above), or in vowels closed by nasal or stop at 2 or 5: /-n -ŋ -t -k/ (while in the Hakka, above, such syllables may be closed by /-m -p/ in addition):

1	a	o	ɛ	ə	an	on	ɛn	ən	at	ot	ɛt	ət
i	ia		iɛ				iɛn	in			iɛt	it
u	ua	uo			uan	uɔn	uɛn	un	uat	uot	uɛt	ut
ü		üo				üon		ün		üot		üt
	ai			əi	aŋ	oŋ			ak	ok		
	au		ɛu	əu								
			iɛu	iu	iaŋ	ioŋ		iuŋ	iak	iok		
	uai		uɛu	ui	uaŋ	uoŋ		uŋ		uok		

1.6.6. For Hsiang (Hunanese), our analogous source (cp. 6.1.0, above) gives two phonemic inventories, one for the Ch'ang Sha (Changsha) dialect and the other for the Shuang Feng dialect.

Chart for Changsha Hsiang initials

	1	2	2̣	2+̣	2+	3	4²	5
Stops	p	t		ṭṣ	ts	ṭʂ		k
Nasals	m	n				ñ		ŋ
Fricatives	f	ṣ	ṣ			ʂ		x
			ẓ					

The column for 4^2 is included in this chart (without entry) because the liquid [l] occurs in Changsha as an allophone of the nasal /n/. Zero is listed for

consonant initial without phonetic consonant. The chart shows six linear distinctions among stops; each plain stop combines with an SGC of aspiration, thereby generating a series of aspirated stops: /p' t' ṭ' ts' tš' k'/.

A few finals end in nasalized vowels; more end in nasal consonants, /n/ or /ŋ/; most end in oral vowels.

ɿ	ɹ	a	o	ë	ai	ei	au	ëu	õ	an	ën	ən	oŋ
i		ia	io	ie			iau	iëu	iẽ	ian		in	ioŋ
u		ua		uë	uai	uei				uan		uən	
ü		üa		üe	üai	üei			üẽ	üan		ün	

Six tones are distinguished.

(33) (13) (41) (35) (21) (24)

Some additional distinctions, and some fewer distinctions are phonemicized by J. R. Firth and B. B. Rogers in The Structure of the Chinese Monosyllable in a Hunanese Dialect (Changsha), BSOAS 8(1935-37). Thus, the semivowels /w y/ are added, and /l/ is distinguished phonemically from /n/, thereby making [ŋ] an allophone of /n/ rather than [l] an allophone of /n/ as in our analogous source. The chief difference between these two sources is that Firth and Rogers postulate five linear distinctions for stops (at 1 2 2+ 3 5) rather than six linear distinctions (as in the chart, above).

Contrastive Chart for Shuang Fen Hsiang initials

Voiced stops:	b	d	ḍz	dz	dž	g
Fricatives:		s	ṣ		š	x
						ɣ

Otherwise, the chart for Shuang Feng would represent the same distinctions as the Chart for Chansha Hsiang initials, above, and appended comment.

There are more nasalized finals in Shuang Feng than in Changsha, fewer finals ending in nasal consonants (but two syllabic nasals), and about the same number of finals ending in oral vowels.

ɿ	a			ə	o	ʊ	əu	ã	ɛ̃	õ	ən	aŋ
i		iɛ	ie	iə	io	iʊ		ĩ	iɛ̃	iõ	in	iaŋ
u	ua	uɛ	ue			ui		uã	uɛ̃	ũi	uən	
ü		üɛ									ün	
											ṇ	ṇ

And five rather than six tones are distinguished in Suang Feng Hsiang:

˥ (55) ˧˩ (23) ˨˩ (21) ˧˥ (35) ˧ (33)

In his Phonetic Notes on the Changsa Dialect [Hunan or Hsiang], BIHP 27.135-73 (1956), Shih-feng Yang is impressed with the general complexity of dialects in the Hunan province. He observes that [phonemically] distinct voiced stops are found in the western region (not unlike the Suang Feng dialect as given above), and that the dialects of the middle region around Changsha retain some of the characteristics of the dialects of the western region (e.g. voiced fricative / ẓ/), but that the dialects of the southern region are most baffling: "They are quite different from the other Hsiang dialects." However, the distinctions which he ascribes to these baffling southern dialects differ from the Firthian phonemicization of the Hunanese (Changsha) initials, as reported above, in only one respect — taking the phone [l] to be an allophone

of /n/, thereby leaving /ŋ/ as a distinct nasal phoneme. But whereas the Firthian analysis of vowels includes single and double vowels in a 2(FCB) system, with a dip in tongue-height for the two central (C) vowels —

F	C	B
i		u
	ə	
e		o
	a	

— the Yangian analysis of vowels in the southern region of Hunan yields a $2(FF^{o}\ BB^{o})$ over N system:

i	u	ɯ	u
e	ə	ʌ	o
	a		

Yang distinguishes six tones:

(1) Mid-level 33: 

(2) Low-rising 13: 

(3) High-falling 53: 

(4) High-rising 35: 

(5) Low-level 11: 

(6) Mid-rising 24: 

1.6.7.1. For Mandarin, our analogous source (cp. 1.6.0, above) gives a half dozen phonemic inventories, three for Peking and Peking-like dialects (Peking, Chi Nan, Hsi An), and three for the remaining Mandarin dialects in the sample (Han K'ou, T'ai Yuan, and Ch'eng Tu). We call the former the

Peking type and the latter the Han K'ou type of Mandarin dialects, though our source does not do this.

Chart for Peking initials

	1	2	2+	2^3	3	4^2	5
Stops	p	t	ts	tʂ	tʂ		k
Fricatives	f	s		ʂ	ʂ		x
				ʐ			
Nasals	m	n					
Liquid						l	

Once again, an SGC of aspiration combines with plain stops, generating as many stops in the aspirated series as there are in the unaspirated series — six linear distinctions in each. And zero initial consonant is again listed among initials.

Finals end either in open vowels or are closed by /n/ or /ŋ/.

ɿ ʅ	ə^	a	ë	ai	ei	au	ou	an	ən	aŋ	əŋ
i		ia	ie			iau	iou	ian	in	iaŋ	iŋ
u		ua		uai	uei			uan	uən	uaŋ	uŋ
ü			üe					üan	ün		üŋ

Four tones are distinguished:

˥ (55) ˧˥ (35) ˨˩˦ (214) ˥˩ (51)

Chi Nan (Mandarin) differs from the above structuralization of Peking initials in one respect — there is a velar nasal matching stop and fricative at 5. Finals end in open vowels (nasalized as well as oral) and in vowels

closed by /ŋ/ (but not by /n/); and there are four tones, but the phonetic specification of these differs from that for the preceding Peking Mandarin.

1	ɿ	ɚ	a	ə	ɔ	ɛ	ei	ou	ã	ẽ	aŋ	əŋ
	i		ia	ie	iɔ	iɛ			iã	iẽ	iaŋ	iŋ
	u		ua	uə		uɛ	uei	iou	uã	uẽ	uaŋ	uŋ	uəŋ
	ü			üe					üã̃	üẽ̃		üŋ

↙ (213) ↘ (42) ↗ (55) ↓ (31)

Hsi An (Mandarin) initials differ from the Peking initials in more than one respect. Under 1, there is an additional distinction, /v/ beside /f/ (hence, only voiceless fricatives would be charted, since SGC of voicing yields a half-series: /v ẓ/). And a separate chart for Hsi An would add, after 1, a column 1+ to accommodate the labial affricates /pf pf'/; and would also add, after 2, a column number 2? to accommodate /ʦ ʦ'/. Such a chart would show eight linear distinctions for stops. The Hsi An chart would show four rather than two linear distinctions for nasals — at 3 and 5, as well as at 1 and 2. Hsi An finals, like those of Chi Nan, end in open vowels (nasalized as well as oral) or are closed by /ŋ/; and four tones are again distinguished.

1	ɿ	ɚ	a	o	ë	ɛ	ei	au	ou	ã	ẽ	aŋ	əŋ	oŋ
	i		ia		ie			iau	iou	iã	iẽ	iaŋ	iŋ	
	u		ua	uo		uɛ	uei			uã	uẽ	uaŋ		uoŋ
	ü			üo	üe					üã	üẽ		üŋ	

↓ (31) ↗ (24) ↘ (42) ↗ (55)

The three remaining samples of Mandarin dialects from our analogous

source make fewer stop distinctions than those shown above in the chart for Peking initials. We call these collectively the Han K'ou type Mandarin dialects, even though the dialects belong to different dialect areas of Mandarin.

Chart for Han K'ou initials

	1	2	2+	3	4^2	5
Stops	p	t	ts	tʂ		k
Fricatives	f	s		ʂ	ɬ	x
Nasals	m	n				ŋ

The SGC of aspiration combines with plain stops, yielding a series of aspirated stops: /p' t' ts' tʂ' k'/; the lateral [l] is an allophone of /n/ (not to mention the phonemically distinct lateral fricative); zero is listed, as usual, for lack of consonant initial. The finals, as for Peking Mandarin, include vowels closed by /n/ or /ŋ/; and also, as in all Mandarin dialects in this sample except T'ai Yuan (below), there are four tones.

1	a	ë	o		ai	ei	au	ou	an	ən	aŋ	oŋ
i	ia		io	ie			iau	iou	ian	in	iaŋ	ioŋ
u	ua	uë			uai	uei			uan	uən	uaŋ	
ü				üe					üan	ün		

(55) (213) (42) (35)

T'ai Yuan (Mandarin) differs from the chart for Han K'ou initials and appended information (immediately above) in more than one respect. Under 1, /v/ is distinguished from /f/, and under 2, /z/ is distinguished from /s/ (hence, an SGC of voicing yields an additional half-series: /v z/).

Under 4[3] there is /l/ (in addition to /n/ under 2); this /l/ does not, however, contrast with a lateral fricative. The finals end in nasalized as well as in oral vowels, and in glottal stop as well as in nasal /ŋ/. And T'ai Yuan is unique among Mandarin dialects in our sample, so far, in distinguishing five rather than four tones.

ɿ	ɚ	a	ə	ai	ei	au	ou	æ̃	ɒ̃	əŋ	aʔ	əʔ
i		ia				iau	iou	iɛ̃	iɒ̃	iŋ	iaʔ	iəʔ
u		ua	uə	uai	uei			uæ̃	uɒ̃	uŋ	uaʔ	uəʔ
ü								üɛ̃		üŋ		üəʔ
˩ (11)		˧˥ (53)		˥˥ (55)		˧ (2)		˧˥ (54)				

Ch'eng Tu (Mandarin) differs from T'ai Yuan (above) in one respect; under 3 in the chart, nasal /ñ/ is distinguished from nasals under 1 2 5, respectively, thereby totaling four linear distinctions for nasals: /m n ñ ŋ/. Otherwise, Ch'eng Tu is less like T'ai Yuan than it is like other Mandarin dialects in this sample — e.g. finals end in open vowels or are closed by nasals /n ŋ/; and four tones (rather than five) are distinguished.

ɿ	ɚ	a	o	e	ai	ei	au	ou	an	ən	aŋ	oŋ
i		ia		ie	iai		iau	iou	ian	in	iaŋ	
u		ua		ue	uai	uei			uan	uən	uaŋ	
ü			üo	üe					üan	ün		üoŋ
˥ (44)		˨˩ (31)		˥˧ (53)			˩˧ (13)					

1.6.7.2. The informal typology (in fact, an impromptu typology) proposed above — to segregate the half dozen Mandarin dialects given by our

analogous source into a Peking type and a Han K'ou type — has the weakness of all informal typologies (that is, of typologies which classify by a selected feature or two rather than by a subsystem as a whole). Our impromptu typology does however serve one useful function for further discussion of Mandarin phonologies; it serves as a point of departure for attempting to understand the curiously diverse phonemicizations which are found in the literature on Mandarin available to us — so diverse, that the descriptions of a given dialect, especially the much described Peking dialect, may show greater differences than do the phonemicizations of different dialects in our analogous source.

Yuen Ren Chao, in his 1948 Mandarin Primer, distinguishes five stops, /p t ts tš k/ rather than six stops for Peking initials; and four fricatives, /f s š h/, rather than five fricatives; and three nasals, /m n ŋ/, rather than two nasals, and two liquids, / l r / (with /r/ = [ɻ]) rather than one liquid. In other words, there is not a single agreement in the number of linear distinctions for stops, fricatives, nasals, or liquids between Chao and our analogous source. The difference in general is due to the alternative phonemicization possible before high front vowels. The alternative followed by Chao is to assign two sets of allophones to the affricate stop and fricative phonemes: /tš tš' š/. In prevocalic environment, when vowel is high F^{o} rounded or F /ü i/, the allophones are at 3 — namely, [tš tš' š]; but before other vowels the allophones are retroflex (i.e. at 2^{3}, as indexed in our first chart for Peking initials) — namely, [ʈʂ ʈʂ' ʂ].

We typologize Chao's vowel system for Peking as F^{o} before 2(FB) over N:

ü (i u)

(e o)

a

We write Chao's / iu/ as / ü/ . Buzzing (vocalized [z] after / ts ts' s/ transforms / ts ts' s/ into syllabics; so also the vocalized [r̩] after the retroflex allophones of / tš tš' š/ transforms these into syllabics.

For stressed syllables, Chao distinguishes four tones in a five-point pitch-range system:

1st High-level 55: ˥

2nd High-rising 35: ˧

3rd Low-dipping 214: ˨˩

4th High-falling 51: ˥˩

The 5th or neutral tone occurs on unstressed syllables. These syllables are usually pronounced with a middle-falling pitch, i.e., 42: ˧˥ which rises expressively when expressing doubt. Interjections, suffixes, pronouns after verbs, reduplicated verbs, and the not-A in A-not-A questions always have the neutral tone.

Peking (Peiping) has relatively simple tone sandhi (only Cantonese and Southwestern Mandarin are simpler):

(a) a 3rd-tone word closely followed by a non-3rd-tone word is pronounced without its final rise in pitch (i.e. 214: ˨˩ → 21: ˨);

(b) a 3rd-tone word followed by another 3rd-tone word is pronounced in the 2nd tone (i.e. ˨˩ + ˨˩ → ˧ + ˨˩);

(c) in a three syllable word spoken at conversational rate the tone of the second syllable is changed (1st/2nd tone + 2nd tone + non-neutral tone → 1st/2nd tone + 1st tone + non-neutral tone);

(d) in 4th tone + 4th tone the tone of the first syllable is changed (↘ + ↘ → ↘ + ↘).

In the preface to Yuen Ren Chao and Liu Sheng Yang, Concise Dictionary of Spoken Chinese (as of 1945, the date of the preface), Chao gives six linear distinctions for stops of Peking initials, five linear distinctions for fricatives, and two linear distinctions for nasals — exactly as does our analogous source (see Chart for Peking initials, at the beginning of 1.6.7.1), and this coincidence may be construed as evidence that our analogous source is derivative of Chao, as of 1945. However, Chao had contrasted two liquids in the earlier preface, before he rephonemicized in his 1948 Mandarin Primer (as indicated in the paragraphs immediately above).

In Sǿren Egerod's 1956 book, Mandarin Peking initials are given much as in Chao's Mandarin Primer (five linear distinctions for stops, four for fricatives, three for nasals); but all three nasals are said to appear also in finals, while the only liquid is listed among the semivowels: /w r y w^y/. The semivowels appear in sequence before single vowels and vowel clusters, and — except non-final /w^y/ — after single vowels. A five vowel system makes three contrasts from front to back (FCB), as well as three tongue-height contrasts:

i ɨ u

ə

a

So far as linear distinctions among consonants are concerned, Chao (1948) reduces Chao (1945) for number of stops and fricatives; and Egerod (1956) reduces the number of liquids from two to one, and further classifies that one, / r/ , as a semivowel.

Further and almost identical reductions are made by Lawton M. Hartman III, The Segmental Phonemes of the Peiping Dialect, Lg 20.28ff (1944), and by C. F. Hockett, Peiping Phonology, JAOS 67.253ff (1947). To be sure, they distinguish three nasals / m n ŋ/ , but Hartman has only two for initials, since / ŋ/ is said (contrary to Hockett) to appear only in finals; so also, they distinguish two liquids / l r/ , but they list the latter in their semivowel series (as does Egerod): / w r y/ . They agree in phonemicizing four linear distinctions for stops, / p t ts k/ (and four for aspirated stops), and three linear distinctions for fricatives / f s x/ . This reduction from the six and five linear distinctions for stops and fricatives is obtained by cluster solution. When C is / k k' x/ before / y/ , C at 3 complements C in other environments (at 5: [k k' x], in terms of the number index shown under Chart for Peking initials at the beginning of 1.6.7.1); allophones at 3 may be written either [ts^{y} ts^{y}' s^{y}] or else [tš tš' š]. So also, when C is / ts ts' s/ before / r/ , C at 2^{3} complements C at 2 + or 2; in phonemic notation, / tsr/ stands for [tš]; but in other environments phonemic / ts/ is phonetic [ts] — that is, not retroflex, so also phonemic / sr/ stands for phonetic retroflex [ṣ], while / s/ in other environments is non-retroflex..

Hartman reduces the number of vowels previously distinguished —

six by Chao and five by Egerod -- to three, namely / i e a/ ; and Hockett further reduces them to two: / e a/ , of which / e/ has an allophonic range from mid-front to mid-back, while the range of / a/ is from low-central to low-back; both vowels are generally unrounded, with slightly rounded back allophones.

Samuel E. Martin is traditional in distinguishing three nasals, / m n ŋ/ , and two liquids, / l r/ (the latter classified as a vowel); but he makes the maximum reduction for stops -- namely to three, / p t k/ ; and for fricatives, he reduces to two, / f h/ , in Problems of Hierarchy and Indeterminancy in Mandarin Phonology, BIHP 21: 1. 209-29, 1957. Martin does this at the expense of increasing the vowel inventory, not to mention an increase in the number of tones (to five beside a neutral tone), and the phonemicization of three stresses and two types of intonation (successive and simultaneous) The peripheral vowels in Martin's systemization make symmetrical contrasts between high (/ i u/) and low (/ a ɑ/) tongue-heights; the central vowels at high tongue-height distinguish non-retroflex / z/ (with [ɨ] allophone) from retroflex / r/ (with [ɨ̢] allophone); and the central vowels at mid tongue-height are distinguished by length, / e e:/ .

Chart of Martin's vowel system

i	z	r	u
	e	e:	
a			ɑ

Chart of Martin's consonant system

	1	2	4^2	5
Stops	p	t		k
Fricatives	f			h
				γ
Nasals	m	n		ŋ
Liquid			l	

The two chief differences between this chart and the chart we started out with for Peking initials are, first, that our point of departure chart gave six linear distinctions for stops, including stops at 2+, 2^3 and 3, while this chart for stops is affricateless; and, second, that our point of departure chart gave five linear distinctions for fricatives, including fricatives at 2, 2^3 and 3, while this chart for fricatives is sibilantless. Insofar as the point of departure chart and this chart lead to isomorphic descriptions, explication of the latter provides a way of specifying the three affricates and the three sibilants which are included in our first chart but omitted in the second chart, immediately above. For example, in distinguishing one oral stop from an affricate stop, /ki/ stands for [tɕ] (at 3, in our index number specification for palatalized consonant), and /k/ stands for [k] in other environments. In distinguishing another oral stop from other affricate stops, /tr/ stands for [t̺ʂ] (at 2^3, in our index number specification for retroflex consonant), and /tz/ stands for [ts] (at 2+), and /t/ stands for [t] in other environments. So also, /hi/ stands for [ɕ] (at 3), /hr/ stands for [ʂ̺] (at 2^3), and /hz/ stands for [s]

(at 2),

In contrast to such subtle phonemications as those given above, it is interesting to look at an early pre-phonemic source concerning North Mandarin (as spoken in the Jehol area in which the city of Chengteh, northeast of Peiping, is located, at a point on the Luan Wall mid-distant between the Gulf and Inner Mongolia) — namely, P. J. Mullie, Phonetische Untersuchungen über die nordpekinesischen Sprachlaute, Anthropos 8.436 ff. (1913). The description is meticulously phonetic, but very few distributional statements are included. We can only attempt to approximate the system intended by restating the description in chart form and appending comment.

Chart for Jehol initials

	1	2	2+	2^3	3	4^2	5
Stops	p	t	ts		tʂ		k
Fricatives	f	s			ʂ ʐ		x
Nasals	m	n			ñ		ŋ
Liquids				r		l	
Semivowel	w						

An aspirated series of stops matches every unaspirated stop given in the chart; and voiced affricates match the voiceless affricates in the chart. Of the initials charted, the nasals at 2 and 5 and the liquid at 2^3 occur also in finals, But it is said that, often enough, the nasals are written merely to mark the nasalization of a preceding vowel.

The vowel system appears to be of the 2(FF° BB°) over (FB) type —

i ü ɨ u

e ö ë o

ɛ a

and it is only the two vowels at low tongue height that are nasalized.

Four tones are distinguished, and it is said that stress occurs in conjunction with polysyllables (compounds). Another North Mandarin dialect, spoken 15 miles west of Kiaohsien in Shantung, distinguishes only three tones, according to Gerty Kallgren (Bulletin 27 of Museum of Far Eastern Antiquities, Stockholm, 1955).

1.6.7.3. Reference has already been made in the sample of six Mandarin dialects (1.6.7.1 above) to the fact that the Ch'eng Tu (Mandarin) dialect bears some typological resemblance to the Han K'ou (Mandarin) dialect. Though the cities of Hangchow and Chengtu have something in common geographically, being equally near 30° latitude, they are by no means close enough to be representative of any dialect area derived from a natural area. Hangchow is on the coast, south of Shanghai, in the South Mandarin dialect area which extends up to and beyond Nanking. Chengtu is far to the west in Szechwan, at about the same southern latitude as Tibet immediately to the west of it. The dialect of Ch'eng Tu seems surely to be representative of the Southwestern group of Mandarin dialects, and one given in the sample of our analogous source, as charted below. Though the Southwestern Mandarin dialect area extends beyond Szechwan to adjacent provinces to the east and to the south

of Szechwan (and even beyond, into Kwangsi), information available to us in sources other than our analogous source is confined to Szechwan dialects. This limited information makes possible a statement on diversity in phonemicizing rather than on dialect differentiation within the Southwestern dialect area as a whole.

Chart for Ch'eng Tu initials

	1	2	2+	3	5
Stops	p	t	ts	tʂ	k
Fricatives	f	s		ʂ	x
Nasals	m	n		ɳ	ŋ

As usual in all Chinese languages and dialects, an SGC of aspiration combines with all plain stops, thereby generating a full series (i.e. set) of aspirated stops: /p' t' ts' tʂ' k'/. What is unusual here is that another SGC, that of voicing, combines with half of the plain fricatives — those at 1 and 2 — thereby generating a restricted series of voiced fricatives: /v z/. The minimum members of a set which are counted as a series generated by any SGC are two (partly because, when only one voiced contrast is made, it can sometimes be phonemicized as a vowel — e.g. /z/ in 1.6.7.2, above). Our analogous source, here as always, lists a zero consonant initial to preserve the pattern of an initial consonant preceding a final. The Ch'eng Tu finals (and their associated tones) have already been given (1.6.7.1, above).

Other sources for the Chengtu dialect of Southwestern Mandarin amplify this skeletal sketch, and differ from it in ways indicated below.

The closest approximation to the skeletal sketch just given is that by Shih-feng Yang, A Note on the Phonetics of Chengtu Dialect, BIHP 23:1. 289-302 (1951), who makes five linear distinctions for stops (as in the chart for Ch'eng Tu initials, above), and four linear distinctions for fricatives (as above), and four linear distinctions for nasals (as above). However, Yang adds a semivowel series, / w y/ , but does not recognize a voiced fricative series, since he merely distinguishes one voiced fricative, / z/ from / s/ at 2. The vowel system is non-matching at three tongue-heights, (FF^{o} BB^{o}) over (FCB) over N —

i ü ɨ u

e ə o

a

Yang distinguishes four tones for Chengtu Mandarin, as he does for Peiping (Peking) Mandarin, but with different phonetic specification, as follows:

Number index of tone:	Chengtu specification:	Peiping specification:
(1)	55:	55:
(2)	31:	35:
(3)	42:	214:
(4)	24:	51:

Yang also describes a closely similar dialect spoken in Li-Chuang, a big country town located in southwest Szechwan province, in Nan Si Sien, characterized as one of the Southwestern Mandarin dialects in Szechwan that has a mid-rising tone (numbered 5, below), among other such dialects in

Szechwan which are spoken along the Yangtze and Min rivers, beginning north of Ba Sien (Notes on the Dialect of Li-Chuang, Szechwan, BIHP 28, 1956). Here again, there are five linear distinctions for stops (as above), four linear distinctions for fricatives (as above), and two semivowels (as above), but three rather than four linear distinctions for nasals: /m n ŋ/. The vowel type is again non-matching at three tongue-heights — (FF° BB°) over (FCB) over N — though phonetic specification of the contrasts differ. As already mentioned, five rather than four tones are distinguished in Li-Chuang:

(1) High-level 55: ˥
(2) Low-level 11: ˩
(3) Falling 42: ˥˩
(4) Low-rising 13: ˩˧
(5) Mid-rising 24: ˧˥

Göran Malmqvist compares the Southwestern Mandarin spoken in Chengtu with that spoken in Loshan, over a hundred kilometers south of Chengtu. Chengtu-Loshan differences come to focus in the finals: six versus five vowels, and four versus five tones, respectively. (A Note on Two Szech'uanese Dialects, Studia Serica, Copenhagen, 1959; cp. also Nien-Chuang Chang, Tones and Intonation in the Chengtu Dialect, Phonetica 2.58-85, 1958).

The modern tendency in phonemicizations of Peking Mandarin is in the direction of reducing the linear distinctions of consonants (see 1.6.7.2, above); this is also exemplified in N. C. Scott's phonemicization of Szechuanese, which reduces plain stop to four linear distinctions, /p t ts k/, which combine

not only with an SGC of aspiration, but also with SGC's of rounding, as /t^w/ and /n^w/, and palatalization, as /t^y/ and /k^y/, or both — or both with aspiration.(The Monosyllable in Szechuanese, BSOAS 12.197-213, 1947).

We conclude this survey of Chinese dialects and languages with a note of appreciation to four friends and mentors, without whom we would not have attempted the task: R. B. Morse, Fang-Kuei Li, Henrietta Chen, and Y. R. Chao. It was, of course, Yuen Ren Chao who animated phonemics in one sense (and, in another sense, buried phonemics) with his 1934 paper on Non-uniqueness of Phonemic Solutions of Phonetic Systems, as we have already said in another paper in this journal (AL 5:1.12): "No linguist in the 20th century after 1934 has been able to resist trying to answer Chao's theoretical question."

The Following Abbreviations Will Be Used

AA	American Anthropologist
ACLS . . .	American Council of Learned Societies
AES-P . . .	American Ethnological Society, Publication
AL	Anthropological Linguistics
APS-P . . .	American Philosophical Society, Proceedings
APS-T . . .	American Philosophical Society, Transactions
BAE-B . . .	Bureau of American Ethnology, Bulletin
BAE-R . . .	Bureau of American Ethnology, Report
CU	Columbia University Contributions to Anthropology
IJAL	International Journal of American Linguistics
IUPAL . . .	Indiana University Publications in Anthropology and Linguistics
JAF	Journal of American Folklore
JSAP	Journal de la Société des Américanistes de Paris
Lg	Language
RCPAFL . .	Research Center Publications in Anthropology, Folklore and Linguistics
SJA	Southwestern Journal of Anthropology
SIL	Studies in Linguistics
TCLP . . .	Travaux du Cercle Linguistique de Prague
UMPL . . .	University of Michigan Publications, Linguistics
UCPAAE . .	University of California Publications in American Archaeology and Ethnology
UCPL . . .	University of California Publications in Linguistics
VFPA . . .	Viking Fund Publications in Anthropology
WDWLS . .	William Dwight Whitney Linguistic Series

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